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Evaluation Points for Solar Project Finance

Japan Credit Rating Agency, Ltd. (JCR) hereby provides the summary of evaluation points for solar project finance.

1. Introduction

JCR has rated a number of solar project finance since the launch of the feed-in tariff (“FIT”) system for renewable energy. While rating decisions are made in line with the corresponding methodology, “Project Finance” (last updated on August 28, 2012), there are not a few factors inherent to solar projects that are not clearly described in this methodology. Because we frequently receive inquiries from investors and other stakeholders, we provide below evaluation points in more detail based also on the recent trend.

Key messages we wish to deliver here can be summarized into four points: i) we do not measure cash flow margin based on the variability of solar irradiation quantity in an extremely stressful scenario but evaluate by incorporating the fluctuation of solar irradiation and other risks individually, provided that an appropriate security package is ensured; ii) for green projects, we assume that measures will be taken to reduce the risk of changes in FIT-based purchasing prices and periods when such risk is large and lowers the evaluation of the development period if such measures are insufficient; iii) as regards the risk of power curtailment that varies by region and applicable rules, we set cash flow margin according to the risk level and factor in the effectiveness of the security package; and iv) for brown projects, we consider that risk is smaller for those that are properly managed and evaluate cash flow margin accordingly.

2. JCR’s perception of the variability of solar irradiation quantity

There is a methodology to measure, based on the variability of solar irradiation quantity at the project site, cash flow margin necessary to withstand even when risks with an extremely low probability but large impact occur every fiscal period. Because this consequently brings the cash flow to a tolerable level against the risks other than solar irradiation quantity, it can be viewed as a conservative methodology. That said, given that, as described later, risk profile is becoming increasingly diversified for each scheme, there is greater rationality in setting a necessary security package and cash flow margin for individual risk factors. We focus on measuring cash flow margin against the variability of solar irradiation quantity from the cash flow at a time when risks with somewhat low probability occur every fiscal period, on the assumption that the security package, such as the measures with dividend lockup triggers on equities, debt service reserve account (DSRA) and deferral of debt service to avoid technical default. At the same time, we identify risks other than solar irradiation quantity and incorporate them individually into the rating in line with the following considerations.

3. Diversification of risk profiles due to FIT system revisions, power curtailment, etc.

The amount of FIT schemes certified and introduced for industrial-use solar power generation has expanded rapidly since the launch of the FIT system, but the fact that many of them have been left unexecuted has been of concern. While those for which electricity connection agreements were not concluded by the prescribed deadline have been revoked, various other measures have been taken for the unexecuted schemes: for instance, the purchasing period was shortened for those that went into operation past the prescribed commencement date set at three years after the date of certification; and the purchasing price of two years before the date the application for grid connection works was received was newly applied and a start-up deadline was set for those for which deadlines were set for such application and commencement of operation but the application was not received in time, while the purchasing price was left unchanged and the start-up date was set for those for which the application was received in time.

Meanwhile, because of an increase in solar power generation systems introduced, the probability of risks associated with power curtailment is rising as indicated by the fact that the number of occasions where electrical system providers, who are off-takers, request power curtailment to solar power producers is increasing in some areas. As regards the output control, power stations apply different rules, such as 30 days, 360 hours and unlimited, and off-takers may also have different operational rules.

Currently, the introduction of basic charges to power companies at the earliest possible date after 2020 is being studied, which will likely result in additional burden on the projects already generating power. Discussions are also being held to develop a system to guarantee steady funding of reserves for waste disposal expenses by power producers.

Consequently, project development periods and post-launch risks vary depending on the status of FIT certification, differences in applicable rules for power curtailment, outcome of the introduction of the basic charges to power companies and waste disposal expenses, etc. We consider it necessary to make judgment for each project as to whether an appropriate security package is ensured and necessary cash flow margin is provided to deal with such diversifying risk profiles. For green projects in particular, we assume that measures will be taken to reduce the risk of changes in FIT-based purchasing prices and periods when such risk is large and consider lowering the evaluation of the development period if such measures are insufficient. As regards the risk of power curtailment that varies by region and applicable rules, we intend to set cash flow margin according to the risk level and factor in the effectiveness of the security package.

4. Model cases

In case of an extremely plain solar project for which debt service can be deferred, mechanisms of dividend lockup and cash sweep with the appropriate level of a DSCR trigger are provided and adequate DSRA and Maintenance Reserve Account (MRA) are set, we consider that a DSCR of around 1.5 for the projects in JCR's "A" rating category and that in the lower 1.3 range for those in the "BBB" rating category is needed based on the cash flow assumed by the sponsor, when a drawdown after the completion of a green project is presumed. However, because we incorporate individual risk factors, we see that there are not a few projects requiring DSCR that is 0.05 points or so higher.

Factors that should be considered in such a case, especially in terms of quantity, probably include: whether the assumed solar irradiation quantity is close to the actual measurements in surrounding areas; whether a drop in power generation due to surrounding conditions, shadow casted by adjoining panels, snow in the winter time, etc. is fully factored in; whether weeding is adequately estimated and reflected in the costs for the projects that require such a work; and whether the deterioration rate is estimated properly. We may conservatively adjust the cash flow when there are any signs pointing out that the sponsor's assumptions should be examined more closely.

5. Brown projects

As a recent trend, frequency of brown project evaluation through refinancing and repackaging is increasing. Therefore, we would like to mention about our views on the cash flow margin of such projects. When the measurement of solar irradiation quantity at the project site, as well as the measurement and management of the performance ratio (PR), is conducted properly, we consider that the DSCR level necessary for a specific rating can be lowered. This is because the required DSCR levels for green projects reflect a risk that irradiation quantity at the project site and actual PR differ from estimation. We predict that the ratio will be lowered only by 0.05 points or so in many cases.

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